

Testimony of Paul Suskie

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Southwest Power Pool, Inc.

Before the Subcommittee on Energy, Climate, & Grid Security

“Powering America's Economy, Security, and our Way of Life:
Examining the State of Grid Reliability”

Thursday, September 28, 2023

Chair Duncan, Ranking Member DeGette, and members of the subcommittee,

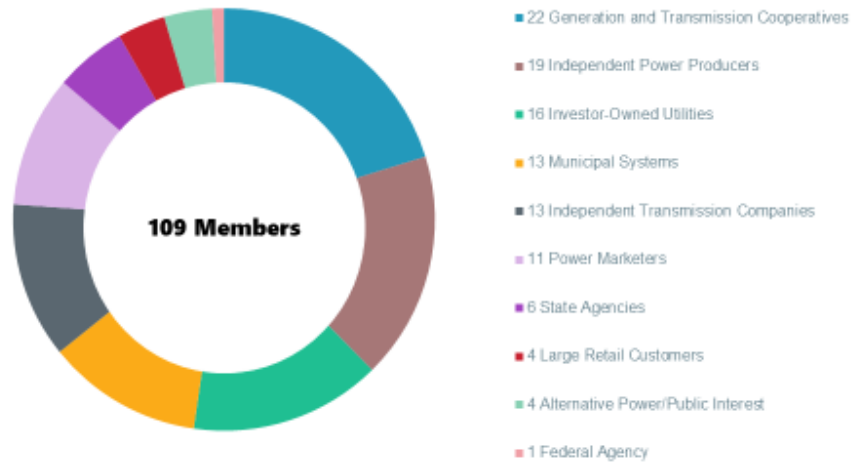
Thank you for the opportunity to testify before the subcommittee today as it examines the state of grid reliability. My name is Paul Suskie. I am Southwest Power Pool's Executive Vice President of Regulatory Policy and General Counsel. Prior to my time at SPP, I served as chairman of the Arkansas Public Service Commission, giving me a unique state and regional perspective on the issues we are here to discuss today.

SPP Overview

SPP is one of seven U.S. Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) designated by the Federal Energy Regulatory Commission (FERC). SPP's RTO service territory extends to fourteen states, mostly in the Great Plains and Midwest. FERC has tasked us with operating the electricity grid reliably and efficiently, administering competitive wholesale electricity markets, and performing transmission planning for the bulk electricity system on behalf of members of the SPP RTO in our region.

SPP has well over 100 members, groups that include utilities, independent power producers, state and federal agencies, retailers, advocacy groups, and independent transmission companies, among others. We administer an inclusive, member-driven governance structure that ensures each of these diverse voices is heard and that policy decisions are based on stakeholder feedback. Our Regional State Committee (RSC), with representatives from each Public Utility Commission in our footprint, provides regulatory direction from all states in our region. On issues of cost allocation for new transmission and resource adequacy, state input via the RSC is vital.

SPP'S 109 MEMBERS: INDEPENDENCE THROUGH DIVERSITY



Updated June 2023



In addition to FERC jurisdictional RTO services, we also offer services to non-member utilities on a contract basis. Our contract services include administering a real-time wholesale balancing market, performing reliability coordination and operating a resource adequacy program in states in the Desert Southwest, Rocky Mountains, and West Coast. The location and size of our service territory puts SPP in a unique position that straddles the seam between the nation's eastern and western interconnections. This distinctly affords us the opportunity to coordinate reliability and market activities across five direct current (DC) ties that interconnect the east and west portions of the U.S.

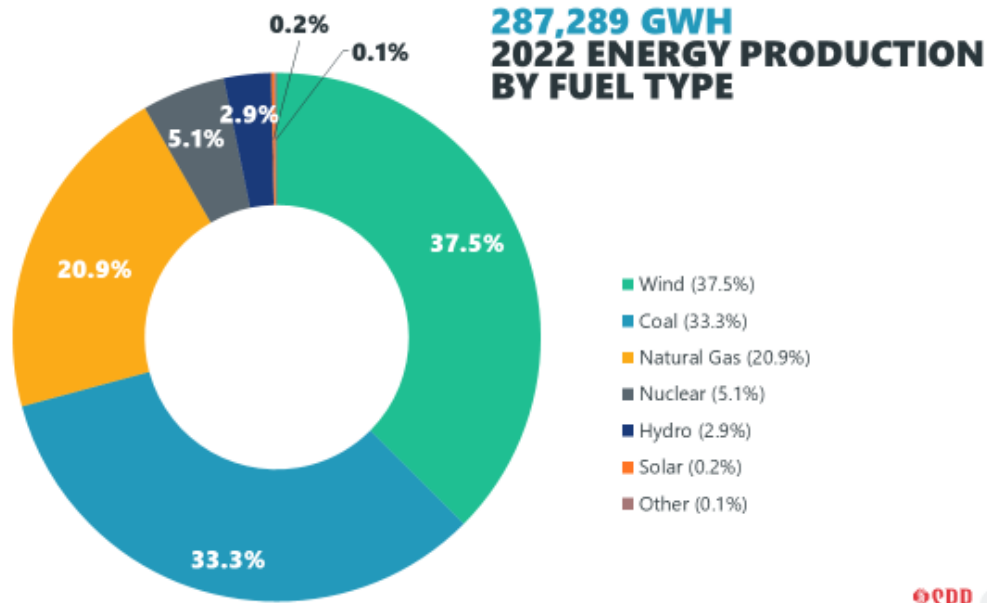
To meet our mandate to keep the lights on for 18 million Americans in our RTO footprint, and empowered by our member-driven stakeholder process, SPP has taken proactive steps to address the most imminent threats to reliability. These include, among other things, extreme weather events that occur with greater frequency than they have in the past, and an increasing demand for

electricity that is occurring simultaneous to significant replacement of traditional, baseload generation by variable energy resources.

Diverse Fuel Sources

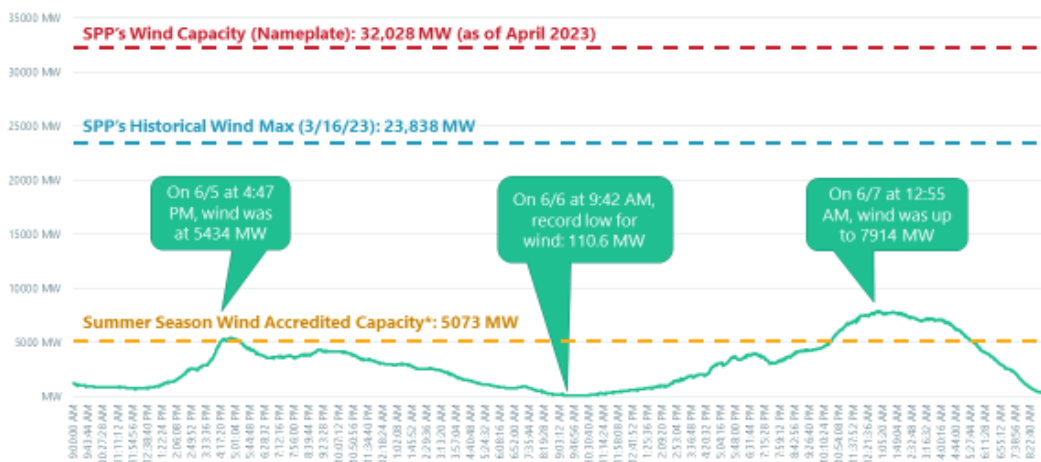
The most important duty we have at SPP is our mission to keep the lights on with a large, diverse fleet of generation resources. As an RTO, SPP is fuel-neutral, which is to say that our staff, systems and FERC-approved procedures do not distinguish between fuel sources. We are tasked with ensuring grid reliability on behalf of our members, and we do so by using the lowest-cost energy available at any given time to meet the regionwide demand for electricity. As long as energy is available to be dispatched, we do not differentiate between renewables such as wind and solar and traditional baseload generation.

Even without any preference given to one fuel source over another, the production of wind power has grown tremendously over the last decade. Wind was the number one source of generation in the SPP RTO last year at just over 37%, meaning wind power represented more than a third of the total energy produced in our 14-state region over the entirety of 2022. In March 2022, we set a wind penetration record when over 88% of our total system demand was met with wind. Last year, coal was our number two fuel source, making up 33% of our total energy production, followed by natural gas at 21%, and that ranking remains the same for energy produced year-to-date in 2023. Nuclear and hydro also contribute meaningfully to energy production in the SPP footprint today, and moving forward, we anticipate that solar energy will comprise an increasing percentage of SPP's fuel mix. Solar makes up 41% of the new grid interconnection requests in our study queue.



This varied fuel mix is key to our efforts to maintain reliability, as each fuel source has its own strengths and weaknesses. Wind and solar power, for example, have zero fuel costs and lower environmental impacts than other generation types. Because they cannot be controlled, however, they also cannot be counted on to serve load as dependably as traditional baseload resources.

WHY FUEL DIVERSITY MATTERS: WIND RAMP AND RECORD LOW (6/6/23) IN INTEGRATED MARKETPLACE



*Source: 2023 SPP Resource Adequacy Report

The growth of renewables has had many benefits, but because the wind doesn't always blow and the sun doesn't always shine, as a grid operator SPP has to rely on other fuel sources to ensure demand can still be met when these intermittent resources are not available. As an example, on June 6th of this year, wind production in the SPP footprint dropped from 5,434 MW to 110 MW in 16 hours (see below). For reference, just three months earlier in March 2023, SPP set a new record for total wind output of 23,838 MW.

Extreme Weather Events

At the same time utilities and grid operators are adapting to a changing fuel mix, we're also facing increasing demand for electricity and more extreme conditions. This summer, for example, SPP experienced record heat and all-time record demand. During the heat wave that affected large portions of the U.S. this August, SPP beat its previous record peak load by more than 5%, serving 56,184 MW on the afternoon of August 21st. Over the course of that week, we spent a total of more than 20 hours above our previous peak set last year. Without the availability of traditional baseload resources (specifically natural gas in this case) to meet demand, a reliability crisis in our footprint, much the same as FERC Commissioner Christie warned about earlier this year, would have occurred.

Once almost unthinkable, we must now plan for "once in a century" extreme weather events on a continual basis. February 2021's Winter Storm Uri caused us, for the first time in history, to briefly shed load due to extreme and widespread cold that led to issues with multiple fuel sources. Extreme weather and emergency planning has now been integrated into standard operating protocol at SPP through improvements to our fuel assurance, market design, transmission planning, and communications policies.

Interregional Collaboration

Aside from the key role that a diverse generating fleet plays in maintaining reliability in real time, SPP also relies on other long-term solutions to keep the lights on in our region. Interregional collaboration with neighboring systems, for example, can help to improve grid reliability by providing operators with more flexibility to manage the grid. If there is a lack of generation or some disruption to the grid in one region, operators in other regions can export their excess electricity to help meet demand and keep the lights on. This is what occurred both during Winter Storm Elliott in December 2022 and (to a lesser extent) during this summer's heat wave when we were able to shift power to our neighbors in MISO and PJM and vice-versa when need was at its greatest.

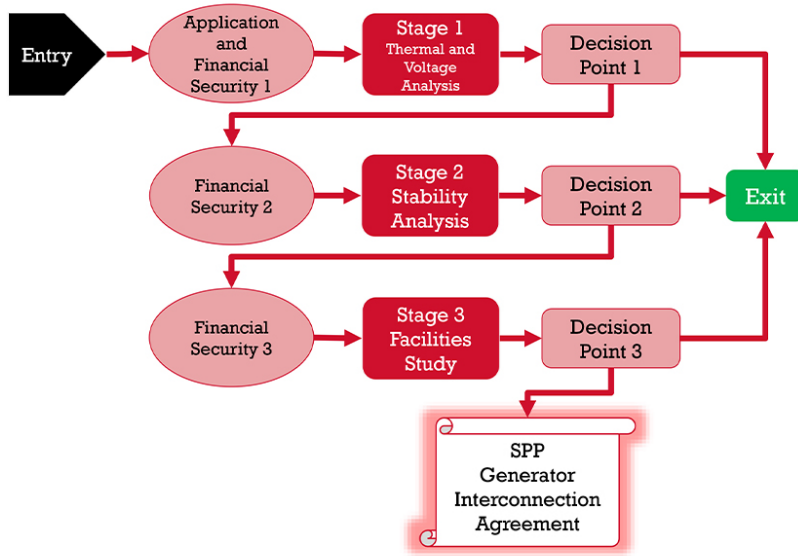
So-called "seams" between RTO/ISOs and interconnections have long been perceived as a barrier to improved grid reliability, but SPP and others are taking steps to improve interregional collaboration. A bright spot in this area has been SPP's partnership with MISO to our east. SPP and MISO operators conducted training exercises after recent extreme weather events (including the 2018 polar vortex and Winter Storm Uri in 2021) to improve our collective ability to assist each other in energy emergencies. This proved crucial during Winter Storm Elliott, as SPP was able to shift from being a net importer to a net exporter of energy over the course of the multi-day event, reducing stress on the grid, preventing loadshed in our footprint, and providing assistance to neighboring RTOs in the east. This partnership helped keep the lights on for millions of Americans.

Planning Reserve Margin

Increasing SPP's planning reserve margin (PRM) is another solution to improve system reliability during more frequent emergency situations. While not without costs, SPP increased the region's PRM last year. This increase is designed to help prevent loadshed in dire circumstances. SPP raised our required reserve margins from 12 to 15% after a comprehensive stakeholder review process that included the unanimous approval of our Regional State Committee (RSC).

Generator Interconnection (GI) Queue

The GI Queue process is the procedure by which new generation is added to an RTO's service territory. The process has many checks and balances to ensure grid reliability during the addition of new facilities to the generation pool (see below). Overwhelming interest in the construction of new generating facilities, primarily from developers seeking to add variable resources to the grid, led to a backlog in interconnection requests in recent years. SPP committed to clearing this backlog, submitting tariff revisions to FERC designed to simplify and reduce SPP's study timelines. SPP has also taken steps to improve model accuracy, such as posting models and draft interconnection study results for review before the final results and using fuel-based dispatch: enhancing planning models so that they simulate the dispatch of generation more like SPP's real-world, day-ahead market while identifying transmission needs resulting from the interconnection of new generators.



These efforts have led to executed agreements to add over 16 gigawatts (GW) of new generation to the SPP system and for the interconnection queue backlog projected to be cleared by 2026. However, 112 GW of new generation requests remain in the queue with more expected to be submitted every year. Our efforts to process these interconnection requests and to integrate these resources into the grid will enhance the reliability and efficiency throughout the SPP footprint, as the system will have additional resources at its disposal.

Conclusion

SPP recognizes the importance of taking preemptive steps to address the reliability challenges of the 21st century, as our nation's electric generation fleet shifts to new fuel sources. We will continue to engage in iterative stakeholder processes, always including our state commissioners, to meet our FERC mandates. Our grid is undeniably changing, and we must adapt with it. As such, SPP's efforts to diversify fuel sources, collaborate with neighbors, increase planning reserve margins, and refine the GI queue process will all help us in our common goal to keep the lights on.

Testimony Overview

- Southwest Power Pool (SPP) is one of seven U.S. Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) mandated by the Federal Energy Regulatory Commission (FERC) to operate the electricity grid reliably, administer electricity markets, and perform transmission planning for the bulk electricity system.
- SPP serves roughly 18 million Americans in 14 states, mostly in the Great Plains and Midwest.
- Extreme weather events are only increasing. SPP has broken multiple peak load records since 2021 and has incorporated energy emergency planning into its standard practices.
- In addition to our RTO footprint, we offer additional contract services in the western United States, allowing SPP the opportunity to coordinate reliability activities between the eastern and western interconnections.
- We have a diverse fuel mix. Wind was our largest fuel source in 2022 (at 37.5%), but traditional baseload power served a combined majority of our production (at 62.3%).
- This diversity allows us to serve demand when variable resources are not available.
- Interregional collaboration presents an excellent opportunity to enhance grid reliability, mitigating the effects of peak demand in one geographic location. SPP is partnering with the Midcontinent Independent System Operator to strengthen its collaborative efforts.
- Generator Inconnection (GI) Queue reform is a key to adding more capacity to the grid, and thus improving reliability. SPP's revised GI Queue process has led to the approval of 14.5 gigawatts of new generation for the SPP system.
- Ultimately, the grid is changing and RTO/ISOs must adapt accordingly. SPP is taking a proactive approach to ensure reliability for the 18 million Americans served by our organization.